**RISK ANALYSIS AND MANAGEMENT SYSTEM**

**ACTIVITY/SITUATION: Zweiholen Caving**

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| **Analysis** | | **Description** | | | | |
| **UNDESIRED EVENT(S)**  **Accident, injury, other forms of damage** | **Outside Cave**  Accident on way to cave  Late start to activity  Stolen property  Leaving equipment behind | | | **Inside cave**  Party member lost or whole party lost  Injury from falling person or object  Injury from equipment failure  Injury from tripping or falling  Stuck on ladder or abseil  Medical emergency Caught in flood  Party fatigue Trapped in squeeze Light failure Severe cold or hypothermia  Psychological distress Drowning  Claustrophobia Damage to equipment  Overdue Damage to environment | | |
|  | **People** | | **Equipment** | | | **Environment** |
| **CAUSAL**  **FACTORS** | **Outside Cave**  Unskilled driver  Overseas drivers  Lack of adequate planning  Poor cave match for group  **Inside cave**  Unfit people in the group  Peer pressure  Poor communication  Pre-existing medical condition  Poor understanding of activity  Untrained staff  Poor risk management practise  Lack of site knowledge | | **Outside cave**  Poor vehicle maintenance  Incorresct equipment for cave  No equipment check sheet  **Inside cave**  Unsuitable group equipment  Poorly maintained equipment  Lack of emergency equipment  Lack of food and hot drinks | | | **Outside cave**  Busy rural roads  Multiple hazards on road  Wet or hazardous road conditions  **Inside cave**  Darkness  Slippery surfaces  Loose rocks  Confined spaces  Cold  Wet  Heavy rainfall  Deep water |
|  | **Normal Operations** | | | | | |
| **RISK**  **MANAGEMENT STRATEGIES** | **Outside cave**  Guides to have correct license for vehicle they are using  Drive defensively  Plan appropriate trip for the group  Obtain group information beforehand  **Inside cave**  Experienced staff with site training  Analysis of accidents and incidents for staff training and site management  Disclose the activity risk  Active management of group safety during activity | | **Outside cave**  Ensure vehicle maintenance is done and vehicle is checked before use  Pack correct equipment for cave  Ensure 1st aid kit in vehicle  Equipment cleaned and serviced before trips  Equipment logged after trips  **Inside cave**  Carry 1st aid kit at all times  Clients issued with any specialised clothing or equipment required for the cave  Checks of equipment during use | | **Outside cave**  Drive for the conditions at the time, slow down in the wet  Check weather before using cave  **Inside cave**  Choose safest route  Protect areas of high risk from damage  Protect clients if exposed to any areas of high risk  Check water gauges | |
|  | **Emergency** | | | | | |
|  | 1st aid kit available on all trips  Communication with base via cell phone or landline  Hot drink and food available on all trips | | | | | |

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| **RELEVANT INDUSTRY STANDARDS APPLICABLE** | Land Transport Safety Authority vehicle licensing regulations  Land Transport Safety Authority driver regulations  Occupational Safety and Health Act  NZ Outdoor Instructors Association cave syllabus  NZ Speleological Association caver guidelines  Black Water Rafting staff training manual  NZ Qualification Authority unit standards |
| **POLICIES & GUIDELINES RECOMMENDED** | All staff to have current 1st aid certificates  All clients/students to fill out medical form before partaking in activity  Appropriate ratios for group management  Cancel trips when there is a defined risk of flooding or the water is over specific operating levels during bad weather |
| **SKILLS REQUIRED BY STAFF** | Good group management and facilitation skills  Risk and crisis management skills  Site specific training  Knowledge of company policy and procedure  Site specific rescue procedures  Good level of fitness |
| **TRIP SPECIFIC RISK MANAGEMENT REQUIREMENTS** | Ratio 1 guide:6 clients  Limit of 12 clients per trip  Sturdy footwear required  Thermal top required  Involves laddering/ropes  Involves squeezes  Close to delicate speleothems  Entrance mud  2 guides on all trips |
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